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Health status among young people in Slovakia: comparisons on the basis of age, gender and education

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Abstract

This study examines the health status of young people in Slovakia. Six subjective health indicators (self-rated health, long-standing illness, vitality, mental health, long-term well-being over the last year and occurrence of health complaints during the previous month) were used to assess the health status of three age groups: first grade secondary school students (mean age 15.9 years), third grade students (mean age 17.8 years) and secondary school leavers (mean age 19.6 years). Females rated their health worse than males on all six indicators (most of these differences were statistically significant). For males, younger age was associated with better self-rated health, less long-standing illness and higher levels of long-term well-being during the previous year. For females, the age differences were more complicated: third grade females reported significantly worse health status in terms of vitality, long-standing illness and number of health complaints than the other two age groups. An analysis of health status by educational level (attendance at or completion of grammar, technical or apprentice school), revealed that grammar school third grade females reported worse health than all other respondents on all six indicators. The third grade of grammar school in Slovakia puts particular stresses on students and, since it has been suggested that females may react more negatively than males to stressful events, this may contribute to their more negative self reports.

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Keywords: Self-rated health; Young people; Gender; Education; Slovakia

Introduction

Several studies using self-reported health indicators among adolescents have been carried out in Slovakia in the recent years (King, Wold, Tudor-Smith, & Harrel, 1996; Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000; Geckova et al., 2001). Currie et al. (2000)

conducted their study in 1997–98. They focused on early adolescents (aged 11, 13 and 15). Adolescents in Slovakia were among those who most frequently reported headache, stomach-ache and backache out of 28 world countries. Geckova et al. (2001) described health status among 15 year olds in Slovakia using self-reported health indicators. They found that Slovak adolescents did not differ in health status from those in Western Europe. Nevertheless, both these studies focused on early and middle adolescence. Less is known about late adolescence and young adulthood in Slovakia.

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The present study has four aims. Firstly, to investigate the health status of young people in Slovakia using self-reported health indicators. This information is lacking in the international and domestic literature. The second aim is to explore age differences in health in three age cohorts of young people. We expect that in spite of the relatively small age range of groups in our study, age differences will occur. The third aim is to explore whether age differences in health status vary between males and females and between different educational levels. Educational level represented by type of school attended is a determinant of school environment experienced (indicating different exposure to stress, school atmosphere or different incidence of health risk behaviour) as well as an indicator of socio-economic status. It is therefore also an important determinant of health in adolescence (Madarasova Geckova et al., 2004). Consequently, educational level should be considered together with gender when exploring age differences in health. Finally, we want to find out whether the familiar gender pattern of less favourable health for females holds for young people in Slovakia.

Methods

Three age cohorts were compared. The first was composed of first grade secondary school students ($N = 1010$, mean age 15.9), the second of third grade students ($N = 982$, mean age 17.8) and the third of secondary school leavers ($N = 844$, mean age 19.6).

Two samples are included in this study. The first sample, with the first two age cohorts, consists of 1992 adolescents from 24 secondary schools from the Kosice region in Slovakia. Data were collected in the winter of 2002. The sample was stratified by type of school and gender (46.5% male, 53.5% female). Respondents completed a questionnaire at school on a voluntary and anonymous basis in the absence of their teachers. A response rate of 97.5% was achieved.

The other sample, with the third age cohort, consisted of respondents from the second wave of the longitudinal study "Socio-economic inequalities in health". The first wave of this study was carried out in 1998 at 31 secondary schools in Kosice region ($N = 2616$, mean age 14.9; Madarasova Geckova et al., 2004). Respondents who agreed to participate in the second wave ($N = 1850$) received a questionnaire by mail during December 2002 together with a stamped return envelope. One reminder was sent to those who did not reply. We received 844 usable questionnaires (42.7% male, 57.3% female). This represents a response rate of 45.5%. Males from apprentice schools were slightly under-represented. However, a comparison of the participants with non-participants showed no significant differences in health status at the time of the first wave.

Health indicators

According to Hammarström and Janlert (1997), the most common way to recognise health problems among young people is through self-reported symptoms. Six subjective health indicators assessing the health status of respondents were used in this study.

Self-rated health is widely used in health studies because it is generally accepted as a good predictor of mortality and morbidity (Sadava, O'Connor, & McCreary, 2000). Respondents assessed their health using the five-point Likert scale from "excellent" to "bad". For this analysis, excellent and very good health ratings were combined as one group, and good, fairly good and bad ratings were considered as a second group.

Vitality and mental health are two scales of the 36-item RAND questionnaire (Ware & Sherbourne, 1992). The vitality scale consists of four items focusing on energy and fatigue. Mental health is a five-item scale focusing on psychological distress and well-being. In both indicators, respondents were asked to evaluate their feelings during the previous 4 weeks using five-point Likert scales. Sum scores were then transformed into scales with a possible range from 0 (worst) to 100 (best).

Occurrence of long-standing illness was measured by the simple question "Do you have any long-standing illness (more than 3 months)?" using the dichotomous answer yes/no.

Long-term well-being was measured on a seven-point scale consisting of stylised faces, with one representing the greatest well-being. Respondents rated their feelings about their life in the past year.

Health complaints experienced during the previous month were recorded using the Slovak version of the Dutch questionnaire VOG (Jansen & Sikkels, 1994; Geckova et al., 2001). This shortened version consists of 13 items. Because some health complaints occur very commonly in adolescence and young adulthood, both the incidence of the 13 items separately and the number of complaints experienced varying from 0 to 13 were examined. A three-point scale (never, less than three times, more than three times) was used in response to each item. For dichotomization, the frequency "more than three times" was used as a cut-off point.

Education

The secondary school system in Slovakia differs from those in other European countries. After leaving primary school (education takes 9 years), adolescents aged 15 enter one of four types of secondary school: (1) Four-year grammar school providing general education and preparation for university study. (2) Four-year technical school providing specialised education, after

which it is also possible to study at university; however, this is a lower level of education than grammar school. (3) Four-year apprentice school providing education for manual occupations. (4) Three- or 2-year apprentice school providing only basic education for manual occupations. After leaving secondary school, usually at the age of 19, young people may enter university or the job market.

Respondents' education level in this study was assessed by the type of school attended for current students and type of school completed for school leavers. It was divided into three levels: (1) grammar school, (2) technical school—students of 4-year technical and 4-year apprentice schools with leaving examination, (3) apprentice school—students of 3 or 2-year apprentice school and school leavers with only primary education.

Results

The first aim of the study was to describe the health of the respondents as revealed by the six health indicators

in each age and gender group separately. Descriptive characteristics of the health indicators used are presented in Table 1. Between 63% and 74% of males and 59% and 63% of females self-rated (SRH) their health as excellent or very good. The highest number of respondents rating their health as excellent or very good was among first grade males (74.8%). Vitality mean scores ranged from 57.5 to 59 for males and from 51 to 54 for females. Mental health mean scores were about 63 in all age groups for males and about 58 for females. Occurrence of long-standing illness was from about 18% to 30% for males and from 30% to 39% for females. The lowest level was among first grade males. Most respondents assessed their well-being during the last year with the second “face” icon (32.1%) and third icon (31.9%), indicating that they felt their life was good. Only 8.3% of respondents felt their life was bad (score 5–7). The highest level of well-being was reported by first grade males (mean 2.5). On average, the respondents reported three health complaints over the last month. In total, 29.2% of all respondents reported no health complaints. A single complaint was reported

Table 1

Descriptive characteristics of health indicators and gender and age differences in health among gender and age groups

Mean age		First grade (15.9)	Third grade (17.8)	School leavers (19.6)	Age differences
SRH, excellent or very good health, %					
	M	74.8%	72.4%	63.1%	$\chi^2 = 14.32^{***}$
	F	62.5%	59.0%	59.3%	$\chi^2 = 1.79$
Gender differences		$\chi^2 = 16.96^{***}$	$\chi^2 = 19.48^{***}$	$\chi^2 = 1.25$	
Vitality, mean sum score (SD)					
	M	59.0 (16.7)	57.5 (16.3)	58.6 (17.1)	$F = 0.96$
	F	52.8 (17.1)	51.3 (17.4)	54.2 (17.6)	$F = 3.47^*$
Gender differences		$F = 33.05^{***}$	$F = 33.60^{***}$	$F = 12.95^{***}$	
Mental health mean sum score (SD)					
	M	63.6 (16.0)	62.9 (15.8)	63.5 (15.8)	$F = 0.30$
	F	58.7 (16.0)	57.8 (16.5)	58.9 (17.9)	$F = 0.64$
Gender differences		$F = 23.39^{***}$	$F = 23.92^{***}$	$F = 14.70^{***}$	
Long-standing illness %					
	M	18.4%	27.6%	30.5%	$\chi^2 = 17.68^{***}$
	F	30.6%	39.1%	35.1%	$\chi^2 = 8.56^*$
Gender differences		$\chi^2 = 19.63^{***}$	$\chi^2 = 14.70^{***}$	$\chi^2 = 2.03$	
Long-term well-being, mean (SD)					
	M	2.5 (1.3)	2.6 (1.2)	2.8 (1.3)	$F = 6.02^{**}$
	F	2.6 (1.3)	2.8 (1.3)	2.9 (1.3)	$F = 6.81^{***}$
Gender differences		$F = 2.16$	$F = 5.97^*$	$F = 0.87$	
Health complaints, mean (SD)					
	M	1.8 (2.1)	2.0 (2.1)	1.8 (2.3)	$F = 1.34$
	F	2.7 (2.3)	3.9 (2.8)	2.8 (2.6)	$F = 6.11^{**}$
Gender differences		$F = 34.82^{***}$	$F = 53.98^{***}$	$F = 30.43^{***}$	

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

SRH—self rated health.

by 15.9% and only 7.1% reported more than 6 complaints.

Fig. 1 shows respondents who reported health complaints more than 3 times in the previous month. The most frequent items in all age and gender groups were tiredness—feeling tired (on average 32% of males, 47% of females), getting tired sooner (males 17%, females 24%) and getting up tired and unrested (males 39%, females 40%). Respondents also often reported headache (males on average 13%, females 32%) and feeling listless (males 25%, females 36%). On average 14% of males and 28% of females reported having backache more than three times in the previous 4 weeks. Other often-reported complaints were aching bones and muscles.

Age differences

The second aim of the study was to explore age differences within the male and female groups separately. Age differences had dissimilar patterns by gender (see Table 1). There were significant age differences among males in terms of self-rated health, long-standing illness and long-term well-being. The younger the male respondents were, the better they rated their health, the less often they reported at least one long-standing illness and the better life they had during the previous year. However, there were not such a clear age differences among females. Significant age differences were found

among females with regard to vitality, long-standing illness and number of reported complaints. Third grade students reported the worst health in these three indicators. Worsening of health among females was found using long-term well-being. Long-term well-being worsened significantly with increasing age among females.

Age differences in three educational levels

Table 2 shows differences in health status between three age groups for each educational level and gender separately. The pattern of age differences differs by educational level. It seems that age, with regard to health, is important mainly within the grammar school group. In this group there were significant age differences in self-rated health, vitality and occurrence of long-standing illness among males. Apart from vitality, the worst health was reported by grammar school leavers. Among grammar school females, the worst health was reported by third grade students in all health indicators. Only in long-term well-being were there age differences among all three educational levels.

Gender differences

The fourth aim was to find whether there were gender differences regarding health status within the three age groups. Gender differences in the six health indicators

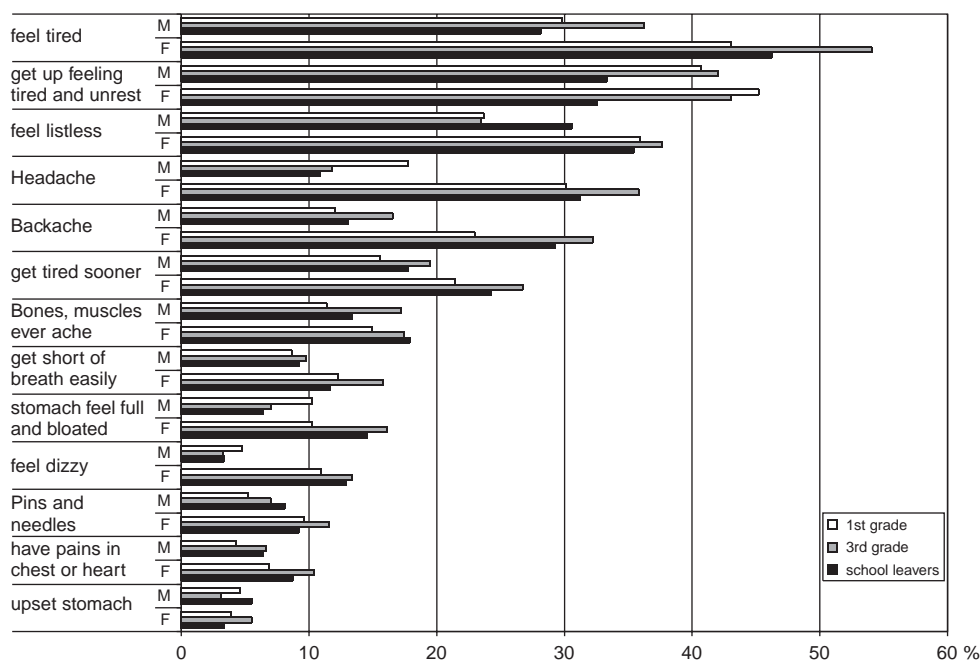


Fig. 1. Occurrence of separate health complaints in gender and age groups.

Table 2
Age differences in health in different gender and educational levels

		Self-rated health	Vitality	Mental health	Long-standing illness	Long-term well-being	Health complaints
Grammar school	Male Worst ⁺	*** School leavers	** 3rd grade		*** School leavers		
	Female Worst ⁺	** 3rd grade	*** 3rd grade	*** 3rd grade	*** 3rd grade	** 3rd grade	*** 3rd grade
Technical school	Male Worst ⁺	* School leavers			* School leavers		
	Female Worst ⁺					** School leavers	
Apprentice school	Male Worst ⁺					** School leavers	
	Female Worst ⁺					* School leavers	

⁺ Cohort reporting the worst health in this educational level.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

are presented in Table 1. Males and females differed in five of the six health indicators significantly ($p \leq 0.001$) within the first and third grade cohorts. Males were more likely to report better health than females in all health indicators used, except long-term well-being. There was no significant difference in long-term well-being between males and females among first -grade students. A significant difference ($p \leq 0.05$) in long-term well-being unfavorable for females was found among third grade students. However, we did not observe the same type of differences among school leavers. Males reported significantly better health than females in three indicators (mental health, vitality and occurrence of physical complaints) within the school-leaver cohort. No gender differences were found here in terms of self-rated health, long-standing illness and long-term well-being.

Discussion and conclusion

The first aim of the present study was to investigate the self-reported health status of young adults in Slovakia. We did this using six subjective health indicators. We found rather high occurrence of long-standing illness, mainly among females. Moreover, the percentage of respondents who reported excellent or

very good health was not very high. These results indicate that the health status of adolescents and young adults, in terms of self-reporting, is not as good as is assumed in the general community. On the other hand, further data from older Slovak inhabitants would be needed to explore whether the self-reported health status of the young is poor compared with older people.

The second aim of the study was to explore age differences in health among males and females. Based on the literature, deteriorating health status with increasing age was expected. Our results provide limited support for this. Although age differences in our study varied by gender and health indicator, we found that worsening of self-reported health with increasing age occurs in a small age range (from 14 to 22 years), at least using several health indicators. Age differences had dissimilar patterns for males and females. Among males, worsening of health status with increasing age was found in three out of six health indicators: self-rated health, occurrence of long-standing illness and long-term well-being. Age differences in the other three health indicators were not significant. However, among females, only long-term well-being worsened with age. In three indicators: vitality, long-standing illness and number of health complaints, significantly worse health was reported by third grade females (mean age 17.8). These findings were

surprising and differed from earlier studies (Glendinning, Love, Hendry, & Shucksmith, 1992; Rahkonen, Arber, & Lahelma, 1995; Waters, Wake, Toumbourou, Wright, & Salmon, 1999). With regard to age differences, it is important to take into account the way in which the age groups for the present study were created. Three age groups of young people were formed not only according to the age of participants, but also according to the specific life stages which they were experiencing. Analyses were therefore also carried out separately for each educational level of the respondents. The results of these analyses can help to explain why third grade females reported worse health in three indicators. We found that third grade grammar school females reported worse health in all the indicators used. No similar pattern was found among females in technical or apprentice schools. In the Slovakian school system, grammar schools provide broad general secondary education and preparation for university study. Third grade is the time when new specialised lessons are implemented in the curriculum; preparation for the leaving exams starts and choice is made of further university study. This situation puts great pressure on students and is an important source of stress at school. Females have been found to react more negatively to various stressful events than males (Cyranowski, Frank, Young, & Shear, 2000). It is possible that females are less able to cope with the great pressure which occurs during third grade at grammar school.

The fourth aim of the study was to identify whether gender differences in health status are similar to those in previous studies. In general, our findings indicate gender differences in health: in all the health indicators used, females rated their health worse in comparison with males. Many of these differences were significant, which corresponds with other studies (Macintyre, Hunt, & Sweeting, 1996; Sadava et al., 2000; Geckova et al., 2001; Hidalgo, Garrido, & Hernandez, 2002).

To conclude, we found that worsening of health with increasing age among young people is not consistent, as it varies with gender and health indicator. Moreover, we found that educational level was a very important variable for explaining the age differences in young people's health. The females in our research rated their health worse in comparison with males in all the health indicators used, and most of these differences were significant.

This study adds information about the health status of Slovak late adolescents and young adults, lacking in the international and domestic literature. Furthermore, we explore age differences in three age cohorts of young people, emphasising the level of their education. The main limitation is the simple statistical analysis which has been used. To obtain more specific information about health determinants and age differences among young people, analyses of more complex models accounting for

other explanatory variables such as parental education, parental employment status, financial situation of the family or health risk behaviour are needed.

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